MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2019/2020

BKC2024 – DATABASE MANAGEMENT SYSTEMS

(All Sections/Groups)

18 OCTOBER 2019
9.00 a.m - 11.00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of 4 pages with 4 questions only.

2. Attempt **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

QUESTION 1

(a) Explain **FOUR (4)** types of users identified in a database system. (8 marks)

(b) Consider the following scenario for a database system:

TIME	TRANSACTION	REPLY	LOCK STATUS	
0			**Data A**	**Data B**
1	T1:LOCK(A)	OK	Unlocked	Unlocked
2	T2:LOCK(B)	OK	Locked	Unlocked
3	T1:LOCK(B)	WAIT	Locked	Locked
4	T2:LOCK(A)	WAIT	Locked	Locked
5	T1:LOCK(B)	WAIT	Locked	Locked
6	T2:LOCK(A)	WAIT	Locked	Locked
7	T1:LOCK(B)	WAIT	Locked	Locked
8	T2:LOCK(A)	WAIT	Locked	Locked
9	T1:LOCK(B)	WAIT	Locked	Locked
...	.....	.....	.....	.....
...	.....	.....	.....	.....

i) Describe what is happening in the above scenario. (2 marks)

ii) Discuss **THREE (3)** techniques to manage the above situation. (9 marks)

(c) The most successful databases are subject to frequent evaluation and revision within a framework known as the Database Life Cycle (DBLC). List the phases involved in DBLC.

(6 marks)

(Total: 25 marks)

QUESTION 2

(a) Describe the differences between entity integrity and referential integrity with an example of each. (10 marks)

(b) As the number of database applications grow, data management becomes an increasingly complex job, thus leading to the development of database administration function which is managed by a database administrator (DBA). Discuss **SEVEN (7)** managerial roles of a DBA. (7 marks)

(c) Millions of people all over the world access the Internet, connecting to databases via Web browsers or data services. Identify and briefly explain **FOUR (4)** new innovative services of the Internet database connectivity. (8 marks)

(Total: 25 marks)

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Question 3

(a) Identify and describe **FOUR (4)** basic characteristics of a Not Only SQL (NoSQL) database. (8 marks)

(b) The following is a user view of a donor's donations report for Derma Center:

DERMA CENTER
Donations Report

Donor ID: AT7447 **Date**: 06 SEP 2019
Donor Name: Adeline Tan
IC No.: 631016-04-3678
Contact: 010-657 2468
Address: 221-B, Taman Kerjasama, Bukit Beruang, 75450 Melaka

Donation ID	Donation Description	Donation Date	Value Worth	Remarks
D1100	Monetary	14/08/19	RM1600	-
D1200	Clothing	22/08/19	RM 480	For 3-8 years old
D1300	Food	02/09/19	RM 100	Biscuits and Milk Powder

Derive the above relations in unnormalized form (UNF), and normalize it from UNF to third normal form (3NF). Show all steps taken to normalize the relations and clearly state any assumptions made (if necessary). (7 marks)

(c) Based on the set of 3NF relations derived in 3(b), draw a complete entity relationship diagram (ERD) using **Chen notation**. Make sure that all the entities, attributes, relationships and connectivities are included in your ERD. (10 Marks)

(Total: 25 marks)

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QUESTION 4

Based on the following tables, write appropriate SQL statements to carry out the following tasks:

CLIENT

CLIENT_ID	CLIENT_NAME	PHONE	EMAIL	SALESPERSON_ID
1000	Andrew Hwang	012-6781234	Andrew_h@gmail.com	S6020
2000	Ravi Kumar	017-6603412	ravikumar@gmail.com	S6010
3000	Tan Geok Kee	010-7459087	gktan@yahoo.com	S6020
4000	Ali Ahmad	016-3459750	Ahmad_a@gmail.com	S6030

SALESPERSON

SALESPERSON_ID	SALESPERSON_NAME	REGION	SALES	COMMISSION
S6010	Kim Chee	West	8000	800
S6020	Wan Tan	South	25000	2500
S6030	Pin Pon	West	11000	1100
S6040	Sin Son	North	500	50

(a) Create the CLIENT table, using the following table definition: (7 marks)

Field Name	Data Type	Size	Remarks
CLIENT_ID	Number	-	Primary key
CLIENT_NAME	Short Text	40	Required
PHONE	Short Text	11	-
EMAIL	Short Text	30	-
SALESPERSON_ID	Short Text	5	-

(b) Alter the size of the CLIENT_NAME field from the current 40 characters to 50 characters. (2 marks)

(c) Add the following record into the SALESPERSON table. (2 marks)

SALESPERSON_ID	SALESPERSON_NAME	REGION	SALES	COMMISSION
S6050	Sue Shi	East	8800	880

(d) Update the PHONE of CLIENT_ID: 1000 to 013-6663333. (3 marks)

(e) Select all the details of salespersons that are NOT from the West region. (2 marks)

(f) Display the average sales of all the salespersons. (1 mark)

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(g) Display the CLIENT_NAME, PHONE, EMAIL and SALESPERSON_NAME in the South region only. (4 marks)

(h) List the SALESPERSON_NAME and SALES for those whose SALES that are above 10000. Sort the result according to SALES in a descending order. (4 marks)

(Total: 25 marks)

End of Paper.